

# LEGIONELLOSIS FACT SHEET



## Overview

Legionellosis is a general term for any disease caused by *Legionella* bacteria. The bacterium is named after a 1976 outbreak among people who attended an American Legion convention. Some of the convention attendees developed a previously unrecognized type of pneumonia that became known as Legionnaires' disease. A milder disease, also caused by *Legionella* bacteria, is called Pontiac fever. Extrapulmonary legionellosis (*Legionella* infection outside the lungs) is another condition, but it is extremely rare.

## Signs and Symptoms

Legionellosis symptoms typically begin two to fourteen days after being exposed to the bacteria. These symptoms vary but include:

- Fever
- Cough
- Shortness of breath
- Muscle aches (myalgia)
- Chest discomfort
- Headache
- Sometimes confusion, nausea, diarrhea, or abdominal pain.

The disease has three forms:

- Legionnaires' disease is the more severe form of infection, which includes pneumonia and can lead to death. Symptoms begin two to 10 days after exposure to the bacteria.
- Pontiac fever is a milder illness in which the patient does not have pneumonia. Pontiac fever is probably not a true infection but, rather, a reaction that can follow exposure to the bacteria. Symptoms begin five to 72 hours after exposure.
- Extrapulmonary legionellosis is a *Legionella* infection outside the lungs. This can manifest as an infection in the heart, a wound, or another site in the body. This occurs very rarely.

## Causes and Transmission

*Legionella* bacteria are found naturally in the environment and can become a health concern when they are able to grow and spread. *Legionella* grow well in warm, stagnant water. They have been found in:

- Hot and cold-water taps
- Hot water tanks
- Water used in air conditioning cooling towers and evaporative condensers
- Humidifiers
- Hot tubs
- Decorative fountains
- Creeks and ponds
- Soil.

People become infected with *Legionella* when they inhale the bacteria in mists or vapors (such as those from showers, bubbling hot tubs or decorative fountains) or when they aspirate (choke on) drinking water that contains the bacteria. *Legionella* bacteria are not easily transmitted from one person to another.

### **Risk Factors**

Most healthy people do not become infected with *Legionella* after exposure. People at higher risk of getting sick are:

- Older people (usually 50 years or older)
- Current or former smokers
- People with a chronic lung disease (like chronic obstructive pulmonary disease or emphysema)
- People with a weak immune system from diseases like cancer, diabetes or kidney failure
- People who take drugs that suppress (weaken) the immune system (for example, after a transplant operation or chemotherapy).

### **Legionnaire's Disease and COVID-19**

Many symptoms of COVID-19 such as cough, fever, and shortness of breath are similar to those of Legionnaire's disease. In addition, many risk factors for Legionnaire's disease are the same risk factors for more severe COVID-19 complications. Due to these similarities, clinicians may test certain patients presenting with these symptoms for COVID-19 and not for Legionnaire's disease. Delayed diagnosis of Legionnaire's disease may slow appropriate treatment. In addition, coinfections with both *Legionella* and COVID-19 do occur and require different treatment than infection with COVID-19 alone. For this reason, it is recommended that all patients hospitalized with pneumonia of unknown cause, be tested for legionellosis.

### **Complications**

Most patients with Legionnaires' disease are hospitalized and about 40 percent require treatment in intensive care units. Some patients suffer lung failure and about 10 percent die from the illness.

Pontiac fever does not progress to pneumonia or death. Treatment is not necessary, and patients recover within a week.

### **Tests and Diagnosis**

A legionellosis diagnosis might be missed because the symptoms are similar to those caused by influenza or other types of bacterial pneumonia. If a doctor thinks a patient has Legionnaires' disease, he/she can use chest x-rays or physical exams to check for pneumonia. Doctors may also order tests on urine and sputum (phlegm) to see if pneumonia is caused by *Legionella* bacteria. A urine test is quick and easy to do, but a sputum test is more likely to identify the bacteria and is more useful if an outbreak is suspected.

## **Treatments**

Most cases of Legionnaires' disease can be treated successfully with antibiotics. Pontiac fever goes away on its own with no treatment.

## **Prevention**

There is no vaccine to prevent legionellosis. The key to preventing the disease is proper maintenance of the water systems in which *Legionella* grow, including drinking water systems, hot tubs, decorative fountains and cooling towers. Persons at increased risk of infection may choose to avoid high-risk exposures, such as being in or near a hot tub.

*Legionella* growth in water systems can be impacted by a number of factors. Steps that may prevent or reduce *Legionella* growth in building water systems include:

- Maintain water temperatures outside of the ideal growth range for *Legionella*
- Prevent water stagnation
- Ensure adequate disinfection
- Prevent sediment, scale, corrosion, and biofilm formation

Importantly, some events that interrupt water systems or change environmental conditions may facilitate *Legionella* growth. These include changes in water temperature or pressure, nearby construction, and others. *Legionella* bacteria do not grow in car or window air conditioners but can grow in the windshield wiper fluid tank of a vehicle, particularly if that tank is filled with water rather than windshield wiper fluid.

## **Disease Patterns**

Most cases of legionellosis occur as single isolated events rather than outbreaks. The highest incidence is in the summer and early fall, but cases can occur at any time of year.

Since 2000, the incidence of legionellosis has been on a steady increase both in Pennsylvania and in the United States overall. Annual incidence rates are generally highest in New England, the Mid-Atlantic region, and nearby Midwestern states. Ohio, New York, and Pennsylvania typically have the highest annual case counts by state. In recent years, Pennsylvania has had 500 or more cases per year; 2018 was a record-setting year with 638 cases.

## **Additional information**

Centers for Disease Control and Prevention:  
<http://www.cdc.gov/legionella/index.html>

*This fact sheet provides general information. Please contact your physician for specific clinical information.*

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